DEPARTMENT OF VETERANS AFFAIRS

IMPLEMENTATION PLAN OF EXECUTIVE ORDER 13123

FOR FY 2002

February 2002

The Department of Veterans Affairs (VA) has been actively involved in Energy Management Program since 1975 and at present is implementing the requirements of Executive Order (E.O) 13123 and Energy Policy Act of 1992 that requires all Federal Agencies to reduce their energy consumption in Federal Building Operations by 35% by 2010 as compared to their consumption in 1985 base year in Btu per gross square foot per year basis. This plan describes how VA is planning to implement the requirements of the E.O 13123 in the next fiscal year and is in the same format as asked for in the guidance provided by Department of Energy and Office of Management and Budget.

I. **Management and Administration**

A. Energy Management Infrastructure

a. **Senior Agency Official** - Dr. Frances M. Murphy, Acting Under Secretary for Health

b. **Agency Energy Team** - The following are the members of the agency's Energy Team:
Technical - Rajinder P. Garg Energy Coordinator
Legal - Leonard Malamud, Special Assistant to Assistant General Counsel
Procurement - Paulette M. Creighton, Procurement Analyst
Budget - Stephen D. Kuper, Program Analyst

A. **Management Tools**

a. **Awards (Employee Incentive Programs)** - VA initiated Employee Incentive Awards Program in 1975 and since then has recognized individuals and. medical centers for their energy savings efforts. In addition to recognition, these awards also provide motivation for others to identify energy reduction measures and energy reduction achievements. The VA participates in two types of energy awards program - the Medical Center Director, Veterans Integrated Service Network Director and/or Secretary of the VA Energy Conservation Awards and the Department of Energy (DOE) Federal Energy and Water Conservation Efficiency Awards. VA has been participating in DOE's awards program ever since it started and has been selected for awards practically every year. DOE's program recognizes organizations, small groups, and individuals for outstanding achievements in several energy related categories within the Federal sector. Categories include energy management, renewable energy, water conservation, ESPC and beneficial landscaping. Medical Centers as well as individuals are recognized for their outstanding contribution to the energy reduction program. Nominations are made through the VA's headquarters to DOE for inclusion into the overall submission from various agencies. VA will continue to participate in DOE's program as well as our own incentive program.

b. **Performance Evaluation.** Since the first Executive Order (EO.) 12003 was signed by President Carter in 1977, it has been VA's policy to include energy conservation requirements and achievements as part of performance evaluation of energy engineers at the headquarters as well as at the medical centers. The chief, engineering service at the medical center is responsible for the overall energy management program and his performance is evaluated based upon how he is implementing the requirements of E.O. 13123 and the percentage of the 2010 target achieved in Btu per square foot (each medical center has an established target in Btu per square foot that it has to meet by FY 2010). This will continue to be VA's policy in the future for the current engineering staff related to energy conservation as well as new engineering employees.

c. **Training and Education.** In order to train and educate the medical center's engineering staff, VA developed a handbook to establish a consolidated volume of energy conservation methods, concepts, and evaluation procedures .for direct use by the facility engineers. The strategy was to compile the most effective technology and energy conservation opportunities derived from previous A/E energy audit studies and to transfer this knowledge in a concise, usable format to the VA's facility engineers.. Continuing with the philosophy of developing in-house expertise, the VA conducted many regional workshops and teleconferences. Also, as required by Section 157 of the Energy Policy Act of 1992, VA conducted a nationwide survey to determine how many energy managers at the medical centers qualify as Trained Energy Managers. It was determined that many energy managers would need some kind of

training before they could be qualified as Trained Energy Managers. The engineering staff at the medical centers has been informed of classes they need to take and their availability in different regions. These classes are offered by the Association of Energy Engineers in cooperation with DOE. Many medical centers took advantage of these classes as well as classes offered on Energy Savings Performance Contract concept during FY 1999 and 2000, 2001 and will continue to do so in FY 2002.

d. **Showcase Facilities**. VA is not planning to construct a new facility that will be designated as Showcase Facility, however, we have many facilities under renovation as part of our ESPC Program and one or more of them will be submitted in the future as Showcase Facilities. At present we do not know the design concept as well as energy or water conservation efforts used to designate these facilities as Showcase Facilities. However, last year we were informed by Department of Energy that Salt Lake City Health Care System, Medical Center Campus, Salt Lake City, Utah has been designated as a 2001 Federal Energy Saver Showcase facility for their savings in energy efficiency and renewable energy technologies in Federal sector. We will continue to identify more facilities in this program as their current projects are completed.

A. **Implementation Strategies.** The following sections will describe applicable strategies that will be used to encourage energy conservation actions at VA facilities to reduce energy consumption and improve energy efficiency:

a. **Life-Cycle Cost Analysis.** Since 1975, it has been VA's policy to fund only those projects that are cost-effective based upon their lifecycle cost analysis that determines the savings to investment ratio (SIR). Higher the SIR number, better is the return on our investment. This was explained in a directive that was issued to all the medical centers and has been used in making decisions about investments in products services, construction, and other projects to lower Federal Government's costs and to reduce energy and water consumption. The Energy Policy Act of 1992 requires that all energy and water conservation measure with life-cycle cost payback of less than ten years be installed in all US-owned Federal buildings by January 1, 2005. It has given agencies the new authority to enter into energy savings performance contracts and describes methodology of contract implementation. VA will be using this authority to implement the requirements of this Energy Policy Act and will fund all projects either through energy savings performance contract or with its own funding. The medical centers are instructed to use the real discount rate and corresponding discount factors that are updated annually by issuing NISTIR 85-3273-15, "Energy Price Indices and Discount Factors for Life-Cycle Cost Analysis", the Annual Supplement to NIST Handbook 135, before submitting projects for review, approval and funding.

b. **Facility Energy Audits**. Most of the VA facilities had their energy audits completed in early 1980s and as a result of that a handbook was published that consolidated the energy conservation methods, concepts and evaluation procedures for direct use by the facility engineers. The strategy was to compile the most effective technology derived from these energy audits and to transfer this knowledge in a concise, usable format to the facility engineers. After these audits were completed, only those medical centers that had major changes in their systems or infrastructure were approved for energy audits. During FY 2001, the medical centers that have signed ESPC contracts with Energy Savings Companies are having energy audits conducted by them as part of their contract. VA is not funding any energy audits itself. However, we have used funding from DOE to complete some energy audits in recent-years.

c. **Financing Mechanisms**. In order for the VA to meet the energy reduction requirements of this E.O 13123 as well as previous mandated laws and Executive Orders, VA spent millions of dollars on energy related viable and cost effective projects with a cost avoidance of millions of dollars in various utilities. However, the diminishing resources available in recent years to maintain and improve our facilities with outdated energy equipment in lighting, heating and cooling systems has become a challenge for our facilities and its staff. Alternative ways of financing these projects had been required. There are numerous ways to finance the upgrades of VA's infrastructure and utility systems through savings in energy bills. The Energy Policy Act of 1992, authorized agencies to use private sector capital funding sources to

finance costs associated with achieving mandated reductions in energy consumption levels. Energy Savings Performance Contract (ESPC) was used as an alternative to the traditional method of financing energy efficiency.

In implementing Section 546 of NECPA, VA is providing the following information regarding the progress in accomplishing projects under energy savings performance contract (ESPC) program:

A. VA completed its first energy savings performance contract in 1993 and its experience has been very rewarding and educational for the medical center staff. The actual energy savings in utility costs have proven to be accurate and the medical center is very satisfied with the performance of the contractor. Since then, VA issued the Final Boilerplate to all medical centers for their specific use in awarding these contracts and the following -projects have been completed:

a. VA Medical Center, Lake City, Florida completed the retrofit of lighting fixtures throughout the facility. Total Project Cost, $308,546.00, Rebate from Utility Company, $28,358.00, Annual Savings, $54,426.00. Tenn of contract, 7 years.

b. VA Medical Center, Dallas, Texas, completed the installation of a thermal water storage system containing 3.3 million gallons capacity vessel. Total Project Cost,$ 1,900,000.00, Rebate from Utility Company, $475,000.00, Annual Savings, $250,000.00. Term of contract, 6 years

c. VA Medical Center, Richmond, Virginia, completed the installation of cooling towers. Total Project Cost, $529,390.00, Annual Savings, $85,405.00.

d. VA Medical Center, Portland, Oregon, completed the retrofit of about 10,000 lighting fixtures, 500 exit signs and 800 occupancy sensors. Total Project Cost, $1,020,000.00, Rebate from Utility Company, $240,000.00, Annual Savings, $103,000.00.

e. VA Medical Center,. Atlanta, Georgia, completed lighting retrofit project. Total Project Cost, $460,000.00, VA's portion of Savings, $97,000.00. -Term of contract, 4 years.

f. VA Medical Center, West Los Angeles, California, completed an ENVEST Energy Efficiency Retrofit project. Total Project Cost $4,338,000.00, VA's portion of the Savings, $560,000.00. Term of contract, 12 years.

g. VA Medical Center, San Francisco, California, completed **Boilers replacement with new steam** reduction system, Energy Management Control System Upgrade, Lighting Retrofit and Motor Efficiency Upgrade. Total Project Cost, $10,953,000.00, VA's **portion of the** savings, $1,787,000.00. Simple pay back of 6.13 years. Term of the contract 19 years. This project, reduced Electrical consumption by 28%, Natural Gas by 11% and O&M cost by 6 I%.

h. VA Medical Center, Loma Linda, California, completed the replacement of old chillers with new energy efficient chillers, cooling tower and pumps, upgraded the existing Energy Management Control System with the latest state-of-the-art technology and many other energy efficient projects. Total Project Cost, $8,254,000.00. VA's portion of the savings, $900,000.00. Term of the contract 10 years.

In addition to the above list, about 18 other medical centers have completed projects under ESPC in FY 2001. The information on project description, total cost, energy saved, VA's portion of the savings and term of the contract is not yet available. We will report that in our next Implementation Plan. As of fourth

quarter of FY 2001, most of the Veterans Integrated Service Networks (VISNs) are in various planning stages for implementation of ESPC. However, 119 VA Medical Centers out of a total of 162, have already signed a Memorandum of Agreement (MOA) either with U.S. Army Engineering and Support Center, Huntsville, Alabama, or Department of Energy (DOE) for the various services they offer under ESPC program, used GSA Area Wide-based contract or tried to accomplish ESPC projects as station level projects. Some of the projects under these MOAs have been awarded to ESPC contractors for design and construction whereas some of them are already in various phases of construction. The following number of facilities have progressed in implementation efforts and have decided the ESPC method they are planning to use:

Station level contracts	18 facilities
DOE-based contracts	41 facilities
DOD-based contracts	43 facilities
GSA Area wide-based contracts	17 facilities

Contractors investments (no VA capital required) of $138.34 million for the task orders that have already been issued will generate $21.77 million savings to VA in operating and utility cost avoidance during the life of these projects.

17 medical centers have terminated their ESPC contracts with DOE or DOD because energy audits have shown that there are no viable energy projects that can be done under ESPC showing a strong commitment on VA's part to implement **energy conservation projects in the past.**

The ESPC contractors have been instructed to_ evaluate and recommend water conservation projects as part of their overall proposal in addition to other energy conservation opportunities.

VA's funding for energy conservation cost effective retrofits and capital improvement and energy surveys/audits projects has been tremendously reduced in recent years because VA is planning to use ESPC as an alternative source of funding to accomplish these projects. VA's plans call for funding only those cost effective retrofit projects that have been identified by the engineering staff at the medical centers and approved by Veterans Integrated Service Network (VISN) Directors for accomplishment at the medical centers for FY 2002 based upon the availability of fund s. Some of the funds might be set aside for projects that will be identified by the medical centers having benefit of Utility Rebate Program in FY 2002, however, most of the projects will be accomplished by ESPC. VA has been actively participating in the Utility Rebate Program and has funded many projects during FY 1992 -200 1.

Building retrofit projects include the installation of State-of-the-art Energy .Management Control Systems, modifications of the existing heating, ventilating and air conditioning (HVAC) systems, replacement of existing inefficient electric motors with energy efficient motors, installation of variable frequency speed controllers, steam trap replacement, improvement of boiler efficiency, improvement by retrofitting and revamping and/or replacing existing lighting fixtures, installation of electronic ballasts, improvement in power systems, installation of additional insulation and storm windows and water conservation projects.

Executive Order 13123 requires each agency to reduce overall energy use of BTU's per square foot of the federal buildings it operates by 35% by FY 2010 compared to its energy usage level of FY 1985. VA has achieved about 63% of 35% goal as of fourth quarter of FY 2001 when adjusted for air conditioning additions and degree days. As part of VA's plan to implement this Executive Order, each medical center has been assigned a target goal in BTUs per gross square foot for FY 2010 that they **are required** to meet and achievement of these goals is monitored quarterly by the Energy Management Division in VA Headquarters. This information is made available every quarter to all medical center staff electronically.

During FY 2001, VA continued to concentrate heavily on research for and the development of cost effective methods such as utility rebate program and energy savings performance contracts to reduce overall electrical consumption and associated costs. Increased demands to satisfy the needs of modem medical care have resulted in an increase of electrical consumption (Kilowatt hours) of 32.50% as of fourth quarter of FY 2001 as compared to VA's consumption for the same quarter in the base year FY 1985.

The following methods have been implemented to reduce this increase:

- The design criteria for all new construction and retrofit now includes the use of most energy efficient lighting fixtures that have a potential for savings of up to 45% to 50% of energy used for fluorescent light fixtures. Also, the new construction is now designed to operate at an electrical power factor of 0.95 or higher.

- Energy Management and Control Systems with direct digital controls are specified as part of new construction as well as when retrofitting existing HVAC systems.

D. **ENERGY STAR and Other Energy-Efficient Products**. VA is issuing directive asking contracting officers, purchasing agents, purchase cardholders, and other procurement officials to purchase such equipment that are in compliance with EPA's Energy Star Symbol when purchasing energy consuming equipment. If the "Energy Star" symbol is unavailable for any particular energy consuming equipment, then such equipment that is among the upper 25 percent energy efficient compared to similar equipment as designated by Federal Energy Management Program will be purchased. This energy efficient criteria has been incorporated into our standard specifications and product specifications for new as well as renovation construction projects.

E. **ENERGY STAR Buildings.** ENERGY STAR is a program that was developed by U.S. Environmental Protection Agency (EPA) to promote energy efficiency in buildings. VA will assess the buildings that are owned and operated by it as well as leasing activities against the ENERGY STAR Building criteria when it is established by EPA- EPA has established criteria for office and other buildings but not for medical facilities. As soon as this criteria is established, we will implement it and identify ENERGY STAR buildings. We are aware that ENERGY STAR buildings must meet a set of criteria based on going through an integrated set of steps to reduce energy consumption. The five stage implementation strategy consists of fighting upgrades, building tune-up, other load reductions, fan system upgrades, and heating and cooling systems upgrades. Actual ENERGY STAR Building certification and labeling is based upon measured building data and a comparison with archetypes in various regions of the country. Recently we have been contacted by Oak Ridge National Laboratory Office asking us to participate in Energy Star program. We have provided them information on energy consumption and performance of our medical centers. Their initial evaluation reveals that about 25% of our medical centers will qualify to be included in Energy Star program. Actual number will be included in next year's update.

F. **Sustainable Building Design.** VA is committed to protecting our environment. One element of VA's environmental strategic plan is to "build green". This is a multi-discipline exercise, which integrates a building's total economic and environmental impacts and its performance on a full life-cycle basis. Such a lifecycle analysis addresses the environmental, economic and performance aspects for every phase of building construction including, material extraction, product manufacture, product transportation, site selection, building design and construction, building operation and maintenance, building reuse or disposal.

VA has integrated the "build green" attitude by:

- Incorporating sustainable design concepts into our solicitation requirements for A/E firms on all major VA projects. VA requires A/E firms to:
    - Explain their expertise with environmentally responsible or sustainable facility design, and their specific expertise in applying " Sustainable Building Design" concepts and methodologies.

- Describe past projects demonstrating site planning that works with the natural environment, maximizes solar energy potential and use of natural light and.. ventilation, and minimizes off-site storm water runoff.
- Demonstrate experience using environmental life-cycle analysis techniques to select building materials, which minimize environmental impacts throughout their life cycle (especially maintenance and -ultimate disposal).

- Participating in the U.S. Green Building Council, National Institutes of Building Sciences, and other leading authorities in the sustainable design movement.
- Continuous Green updating of the VA Master Specification, design manuals, and design guides.

G. **Energy Efficiency in Lease Provisions.** VA will be incorporating the following most standard solicitation for offerors (SFO) clauses in their lease bid package for new as well as renegotiated/extended existing leases:

- All offerors are encouraged to use Energy Savings Performance Contracts (ESPC) or utility agreements to achieve, maintain and/or exceed the ENERGY STAR Benchmark Score of 75, and are encouraged to include shared savings in their offer as a result of energy upgrades where applicable.

- All new construction shall achieve an ENERGY STAR Building Label within one year after reaching 95 percent occupancy and continue to maintain the level of performance.

- Offerors may obtain a list of energy service companies qualified under the Energy Policy Act to perform ESPCs, as well as additional information on cost effective energy efficiency, renewable, and water conservation from DOE, Federal Energy Management Program.

H. **Industrial Facility Efficiency Improvements.** VA does not have facilities that qualify as industrial facilities, however, all our facilities being medical centers are energy-intensive facilities. These facilities have steam systems, boiler operation, air compressor systems, co-generation, fuel switching and other efficient and renewable energy technologies. As explained in the previous paragraphs under different subtitles, VA has taken many cost effective steps to reduce energy consumption in these facilities that include these systems and will continue to do so to meet the goals established by E.O.. 13123 and this Directive.

I. **Highly Efficient Systems**. VA construction standards require that the consultant evaluates the use and cost effectiveness of natural resources that are available at that location for new as well as retrofit projects. Most of the new and/or retrofit projects have combined cooling, heating, ventilating and power systems as integral part of the overall project. Since VA operates and maintains medical centers, most of the projects are evaluated and funded based upon life-cycle cost analysis that involves installation of new equipment or retrofitting existing equipment.

J. **Off-Grid Generation**. VA has not yet evaluated the cost effectiveness of installing solar electric, solar outdoor lighting, small wind turbines, fuel cells and other off-grid alternatives. However, we did install many solar hot water systems at the medical centers that are operational. We will evaluate these systems for their cost-effectiveness and decide on their usage.

K. **Electrical Load Reduction Measures.** VA has long been committed to improve the efficiency of operation of its medical centers to overall reduce the electrical energy consumption and meet the mandated reductions required by the E.O 13123. In total, since 1975, VA has invested about $200 million on viable energy related cost effective projects which have produced cost avoidance of about $300 million in various utilities costs. The Energy Policy Act of 1992 (EPAct) and the latest E.O. 13123 requires that Federal agencies reduce their energy. consumption by using numerous ways to finance (as their local funding resources are getting very low) the upgrades of infrastructure through future savings in energy bills. Energy Savings Performance Contracting (ESPC) and Utility Demand Side Management (DSM) offers means of achieving this energy reduction goal at no capital cost to the government. VA has awarded many ESPC contract task orders to upgrade the existing air

conditioning systems, lighting systems, energy management control systems, installation of light as well as body sensors, etc. and infrastructure to accomplish the reduction in electrical consumption and financed it with future savings from reduced utility bills.

Most of the medical centers have emergency generators designed to take care of the equipment that serve the most critical areas of the hospital. These generators have been used in the past to shave peak electrical load depending upon whether it is cost effective or not. VA does not have a policy that mandates the medical-centers to use or not to use these generators for peak shaving. It is determined by the management at the medical center.

As explained earlier in this plan, most of the medical centers have completed comprehensive energy audits under ESPC and are in process of completing the energy conservation measures identified by the energy saving companies to reduce their electrical consumption. VA medical center at San Diego is the only medical center in VA system that has a co-generation plant of 880 KW and under the new ESPC contract the existing plant will be increased to 4,072 KW giving the medical center enough capacity to operate independently without depending upon the supply from utility company. It has been determined that there are some medical centers that do not have viable energy conservation projects that can be accomplished under ESPC.

VA has active Energy Awareness Program. During the Energy Awareness month as well as throughout the year, the medical center are informed regarding the state-of-the-art technology for their implementation to conserve electrical energy via national engineering conference calls, engineering conferences and other opportunities as they become available. All the literature received from Department of Energy "You Have The Power" program is distributed nationwide to all the medical centers. As part of this program, the employees are constantly reminded of turning off the lights when leaving an area for more than one minute. Some of the areas such as conference rooms, large meeting rooms, toilets, etc. have motion or body sensors that automatically turn the lights off if they do not sense any motion in that area. Also, light sensors have been installed to turn the lights off if daylight provides adequate lighting level. The employees have been instructed to turn off general lights when using task light, turn off printers, monitors, computers and personal appliances when leaving for the day.

VA has very strict heating, ventilating and air conditioning design standards that are used by the consultants to design new construction as well as to retrofit the existing systems. Since VA operates and maintains health care facilities, these standards are implemented to provide the best care for our nations veterans. Energy Management Control Systems are installed to maintain adequate temperatures in various areas of the hospital, duty cycle the equipment, turn off equipment in the unoccupied areas, vary the speed of motors under partial load conditions, etc.. VA has installed many Thermal Ice or Water Storage Systems. The ice or chilled wafer is produced during off peak hours when the demand is at its lowest level and used next day to provide air conditioning that reduces high demand charges.

L. **Water Conservation.** VA has taken steps to promote water efficiency throughout the agency by asking medical centers to develop water management plans and implement best management practices for efficient use of water. Most of the medical centers have signed ESPC contracts with energy service companies and have asked them to recommend water conservation projects using the best management practices as part of their overall proposals. We will ask these companies to complete as many projects as cost effective for the VA as well as for them.